CLAIMS:

1.   A projection display device comprising

an illumination system having a light source providing an illumination beam,

a colour filter means comprising four different colour filter segments,

corresponding to four different primary colours, respectively, for scanning an image display

5   panel with different coloured portions of the illumination beam, and

an image display system comprising said image display panel for modulating

the coloured portions of the illumination beam with image information and projecting an

image on a screen, characterized in that the colour filter segments are arranged to allow

simultaneous scanning of said image display panel with at least three of said four primary

10   colours.

2.   A projection display device as claimed in claim 1, wherein the colour filter

means is arranged to allow simultaneous scanning of said image display panel with at least

four of said four primary colours.

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3.   A projection display device as claimed in claim 1 or 2, wherein the colour

filter means is a colour wheel.

4.   A projection display device as claimed in claim 1 or 2, wherein the colour

20   filter means is a colour drum.

5.   A projection display device as claimed in claim 1 or 2, wherein the colour

filter means is a polygon mirror.

25   6.   A projection display device as claimed in any one of claims 3 to 5, wherein the

colour filter segments are spiral-shaped.

7.   A projection display device as claimed in any one of the preceding claims, wherein three of the primary colours are chosen from the set of red, green, blue, yellow, cyan and magenta.

8.   A colour filter wheel for use as said colour filter means in a projection display device as claimed in any one of claims 1 and 2.

9.   A colour filter wheel as claimed in claim 8, wherein the colour filter segments are spiral-shaped.

10.   A colour filter wheel as claimed in claim 9, with said projection device having an illumination window for transmitting said illumination beam to said colour filter segments, the distance from the intersection between two adjacent colour filter segments to the centre of said colour wheel is determined by the equation

$$R_x = D_0 + \alpha (\Phi + \Phi_x)$$

wherein R_x is the distance from the intersection x to the centre of the wheel between the colours, D_0 is the distance between the illumination window and the centre of the wheel, α is a constant, Φ is the angle of the wheel and Φ_x is the phase of the intersection x.

11.   An image display system for use in a projection display device as claimed in any one of claims 1 to 7, wherein the display system is arranged to discriminate between at least a first type of image and a second type of image to be presented; for an image of said first type, projecting the image using a first set of the primary colours of the colour filter means; and for an image of said second type, projecting the image using a second set of the primary colours of the colour filter means.

12.   A method of operating a projection display device as claimed in any one of claims 1 to 7, the method comprising the steps of:

            discriminating between at least a first type of image and a second type of image to be presented,

            for an image of said first type, projecting the image using a first set of the primary colours of the colour filter means,

for an image of said second type, projecting the image using a second set of the primary colours of the colour filter means.

13.   A method as claimed in claim 12, wherein the first and second types of images are data images and video images, respectively.

14.   A method as claimed in claim 13, wherein data images are displayed, using all of said four different primary colours, and wherein video images are displayed, using three of said four primary colours.